F' cncl'd. sub F' cncl'd

are secured to a rotating shaft facing each other wherein end surfaces of said base portions are in close contact with each other and said claw-shaped magnetic poles intermesh with each other;

a cylindrical bobbin having a cylindrical portion and a pair of first and second annular flange portions projecting perpendicularly from both ends of said cylindrical portion, said bobbin being fitted over said base portions of said pair of field cores;

a field winding wound a predetermined number of turns into multiple layers on said cylindrical portion of said bobbin of said rotor; and

a recessed groove formed in an inner surface of said first annular flange portion from an outer circumferential end of said first annular flange portion to an inner circumferential end thereof,

wherein said field winding has a flat rectangular shape in which a pair of opposite flat surfaces are parallel,

said field winding is wound onto said cylindrical portion of said bobbin wherein said pair of opposite flat surfaces face the inner circumferential side and the outer circumferential side, respectively, relative to a radial direction of said cylindrical portion,

said bobbin is formed to have a field winding mounting portion in which a radial length thereof is shorter than an axial length thereof, and

a starting portion of said field winding is housed in said recessed groove so as to make said opposite flat surfaces square with an axis of said bobbin.